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# Strategy to Increase Quality of Health Education in Boarding School Malang as Solution to Prevent Scabies

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**Abstract**: Scabies is itch human skin disease caused by the mite *Sarcoptes scabiei* var. Hominis. The prevalence of scabies in boarding school was relative high. That condition must be solves, because is frequently associated with considerable morbidity, difficulties in concentration can lead to poor performance in school. Therefore, health education is necessary to increase knowledge student, introduce scabies, and motivated student behavior healthy that prevent spread and control of scabies in boarding school. The aim of this research: 1) describe prevalence scabies in boarding school Malang Raya, 2) describe the student knowledge about scabies, 3) describe health education was done in boarding school. The type of study is survey epidemiologic scabies. Total population is 4233 students with a sample of the study were 410 students. The sampling technique on this research was random sampling method. The data were collected using interviews, observation and instrument test. The result of this research: 1) the prevalence scabies in boarding school Malang Raya was 37.32%, 2) the student knowledge were low, with average 57.73±16.84. The score minimal is 0, and the score maximal is 100. 3) Health education in boarding school not variation, and monotone. There was rules related personal hygiene in boarding school. Counseling to promote knowledge students was done by lecture method, answer and question method. Quality of health education must be increased by some strategy. There was variation method, using media which interest attention student.

**Keywords**: *Scabies disease, Islamic boarding school, Knowledge, Student.*

## 1. INTRODUCTION

Scabies is a skin disease that caused by the mite *Sarcoptes scabiei* var hominis (Chowsidow 2006). *S. Scabiei* belongs to the kingdom-Animal, Phylum-Arthopoda, Sub phylum-Chelicerata, Class-Arachnida, Sub class-Acari, Order-Acarina, Family-Sarcoptidae, Genus-Sarcoptes (Bandi and Saikumar 2009). The result in skin was infected *S. Scabiei* include erythematous, specific lesion, such as burrows, and nonspecific lesion such as papule, nodule, pustule, and vesicle (Chouela et al. 2002). Scabies cause intense itch in the night, affecting disturbance sleep and decrease quality of life.

*S. scabiei* transmitted to human on direct or indirect contact (Chowsidow 2006). Direct contact is close contact skin which infected mite to health skin. Indirect contact means transmission of mite by thing intermediate infested *S. scabiei*, e.g. bedding, clothing, and towel. The risk factor for scabies have been cited like overcrowding, lack of health education, lack of personal hygiene, environment in which ignorance as result humid, unsanitary living and the neglect of personal health (Fakorziba *et al.* 2012, Onayemi *et al.* 2005, Raza *et al.* 2009).

Scabies is a disease that is considered a public health problem in crowded place such as boarding schools (Hay *et al.* 2012). Prevalence scabies in boarding school East Jakarta, Indonesia was 36% (Sianturi and Sunkar 2014). Prevalence scabies in Islamic boarding school Yogyakarta, Indonesia was 57.4% (Hima and Ghazali 2014). Prevalence scabies in boarding school was still relatively high.

Students was infected scabies have been decrease concentration study, and decrease achievement at school. Although scabies actually is not fatal or life-threatening condition, but it can severe and persistent, leading to debilitation, discomfort, depression and secondary infection (Amro and Hamarsheh 2012). Secondary infection caused by *Staphylococcus aureus* and *Streptococcus sp.* very dangerous to human health (Hay *et al.* 2012). Neglectful in scabies skin disease can make various serious problems in human health.

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Health education is a best solution to prevent scabies in boarding school. Health education having vital in combating spread, reducing morbidity, and improve health status (Onayemi *et al.* 2005). Scabies can prevent with educate to better scabies recognition, improve hygiene and implement campaigns (Amro and Hamarsheh 2012). Actually, health education having means to increase health literacy. Health literacy is aware from student to prevent the disease and immediate to get some medicine (Notoatmodjo 2010). The health education is not only just to increase knowledge, but deep to change the behavior to more healthy.

The health education program achieved with pressure and persuasion (Notoatmodjo 2010). Pressure use coercive rules. Persuasion use campaigns. Health education not only to educate student in boarding school, but also management boarding school and government to increase health public facility and infrastructure.

Malang Raya include three area, there are Malang town, Batu town and Malang regency, East Java, Indonesia. Malang Raya is education area, which have 700 boarding schools. The problems still classic, there are scabies. According, preliminary research was found the student have scabies disease in some boarding school. The epidemiologic survey need to do to solve this problem. The research purpose to: 1) describe prevalence scabies in Malang Raya, 2) describe student knowledge about scabies, and 3) describe health education was done in boarding school. The data based from the research can be using to suppress scabies in boarding school.

## 2. METHOD

This is a descriptive survey epidemiological research based on observation, deep interview and test knowledge student was conducted on 2012-2014. Populations are all of student in boarding school Malang Raya. The size minimum samples measured by calculating Noor (2009), there are 385 students, confident rate 95%. Samples were chose by random method from 9 boarding schools, which was recommendation by ministry religion Indonesian. Total population is 4233 students with a sample of the study were 410 students.

Scabies was diagnosed clinically and microscopic detection. Diagnosed clinically was helped by paramedic to observed presence of burrows or erythematous papule, vesicular, or pustule lesions. Interview was conducted to ask presence itching student in the night. The microscopic detection observed presence of mites, eggs, or feces *S. scabiei* (Amro and Hamarsheh 2012). Knowledge students were examined by instrument test which validated and examined their reliability. The instrument test was three option answers, there are correct, wrong, don't know. Each correct answer have 5 score, the wrong answer and don't know answer have 0 score. The minimum score was achieved by student is 0 (zero), but the maximum score was achieved is 100.

Data were presented as mean ± standard deviation of the mean. The data about scabies and knowledge student were calculated for each gender during the research period. The male to female ratio was calculated for each group and Chi-square statistics were calculated to identify significant differences. Significance was set at the level of 0.05. Statistical analyses were carried out using the Statistical Package for the Social Sciences SPSS 16. The data about health education in boarding school was collected by observation and deep interview with students and management. The data was analyzed, data reduction, data display, conclusion drawing and data verification.

## 3. RESULT AND DISCUSSION

### 3.1 Result

The result research contains prevalence scabies, student knowledge and health education in boarding school Malang Raya. Explanation each section as follows.

#### 3.1.1 Prevalence scabies

The prevalence of scabies in boarding school in Malang Raya during the period 2012–2014 based on 410 students. The prevalence incidence rate for the scabies was 37.32% (Table 1). Student age ranged from 7 years to 20 years, with a median of 14 years (Figure 1); mean age was 14.52 years, with a standard deviation of 2.28 years. Infection scabies among Boarding school in Malang was correlated with gender; 23.17% of the patients were male and 14.15% were female (Table 2). The male to female ratio was 1.64. There were significant differences in disease prevalence between males and females ($p > 0.05$).

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*Table 1. Age and scabies prevalence student in boarding school Malang Raya*

| Variables | Range | Average ± SD |
|---|---|---|
| Age | 7-20 | 14,77 ± 2,52 |
| Scabies prevalence | 0-100 | 37,32 |

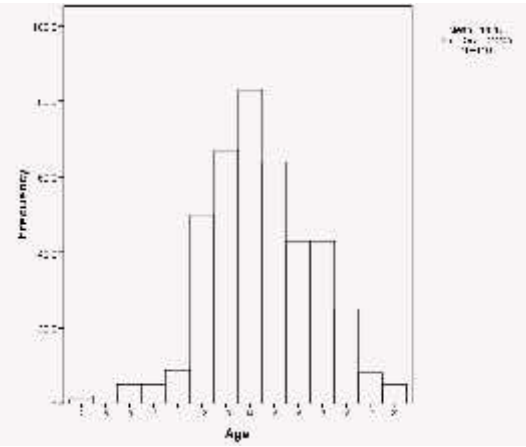

*Figure 1. Age student as respondents' research*

| Sex | Number of students with scabies diseases (n) | Total Number of students (N) | Prevalence scabies in boarding school (%) |
|---|---|---|---|
| Male | 95 | 209 | 23.17a |
| Female | 58 | 201 | 14.15b |
| Total | 153 | 410 | 37.32 |

*Table 2. Prevalence scabies based on gender*

### 3.1.2 Knowledge students

The knowledge of the students were tested, there are scabies symptoms, biology aspect mite, mite transmission, transmission mechanism mites, scabies prevention method. The level of knowledge of students in the boarding school in Malang relatively low, while the average with standard deviation is 57.73 ± 16.84. The average level of knowledge of male students is 57.88 ± 15.87, while the average level of knowledge of female students is 57.56 ± 17.86 (Table 3).

*Table 3. Average of score knowledge in male and female students*

| Gender | Average ± SD |
|---|---|
| Male | 57.88 ± 15.87 |
| Female | 57.56 ± 17.86 |
| level of knowledge | 57.73 ± 16.84 |

Knowledge students classified into 3, there are low, medium, and high. Low is student achieved score ≤ 56, moderate is student achieved 57-75, high is student achieved ≥ 76. (Table 4). There were no significant differences in knowledge students between males and females ($p > 0.05$). The knowledge of the students high category just 9.7%, but there are low and medium category achieved 90.3% (Table 4).

| Classified of knowledge | low (≤56) | moderate (57-75) | High (≥76) |
|---|---|---|---|
| Male | 89 | 103 | 17 |
| Female | 98 | 80 | 23 |
| Total | 187 (45.3%) | 183 (45%) | 40 (9.7%) |

*Table 4. Level of knowledge students*

### 3.1.3 Health Education

Health education has been carried out in boarding schools, among others rules and counseling. The existing rules for example, "throw garbage in trash", "keep cleans room". The rules are indeed associated with environmental hygiene, but have not associated with personal hygiene. Health education was done by the manager of the boarding school has not been optimal. Most boarding school not having a well-planned program and even some do not have health education programs.

Health education programs have been carried out by college students of Public Health Sciences, Nursing, and Medicine, and ministry of health Republic Indonesia. Program through extension activities, conducted in the form of lectures that using the media LCD projectors. The use of instructional media is only used when counseling alone. Counseling is done in the hall followed by all students. Mostly students, have a low retention of the material extension.

## 3.2 Discussion

This section contained discussion about prevalence scabies, knowledge students and health education in boarding school Malang Raya. The explanation for each section as follows.

### 3.2.1 Prevalence scabies

There was a significantly greater prevalence scabies rate among females with a relative risk of 1.64 ($P < 0.05$) relative to males. The same result that prevalence scabies more dominantly in males (26%)

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than in female (9%) in Malaysia (Zayyid *et al.* 2010), also in Iran show that scabies common in males with incidence of 13.7% and in female just 3.6% (Berenji *et al*. 2014). Contradiction, there prevalence scabies more dominantly in female with a relative risk of 1, 24 relative to males (Lassa et al. 2011). There difference result in Palestine, show that no significant difference was found in the prevalence of scabies between males (52%) and females (48%) (Amro and Hamarsheh 2012). This inconsistency could not be explained and might be attributable to racial factors, as well as private or hidden factors in each country, so a global meta-analysis is recommended to better understand the role of gender in scabies prevalence worldwide (Amro and Hamarsheh 2012).

Gender is not affected direct for prevalence scabies, but crowded living condition, intimate personal contact and lack of personal hygiene predisposed these students to scabies (Raza *et al.* 2009). These differences could be related to differences in lifestyle and hygienic conditions in different societies. Rate of scabies can be related to poor hygiene, and low education (Berenji *et al*. 2014). The other factors that contributed to the increasing prevalence of scabies were host behavior patterns.

### 3.2.2 The Student Knowledge

The student knowledge was examined among other symptoms of scabies, mite biological aspects, transmission mite, how to prevent scabies was low. Therefore students in boarding school need to improve their knowledge. Increasing knowledge in the community with high prevalence scabies are the proper methods for controlling scabies in the community (Berenji *et al*. 2005).

Students age has median 14 years, that having secondary high school. In this research, prevalence scabies higher in student secondary high school than student senior high school. Education status associated with scabies, low level of education is one of the risk factors contributing towards development of scabies (Bailie *et al.* 2005). Less-educated individuals were more having scabies, the reason is probably that less-educated people are less conscious of the importance of personal hygiene and the role of poor hygiene in the spread of communicable diseases (Raza *et al*. 2009). There-fore, they need public health program to educate the students to understand the preventive aspects of diseases like scabies.

### 3.2.3 Health education

Health education materials should not only relate to personal hygiene, but it should be added about symptoms of scabies, mites biological aspects, transmission mite, mite transmission mechanism, how to prevent scabies. Based from the research result show that knowledge students relative low about symptoms of scabies, mites biological aspects, transmission mite, mite transmission mechanism, how to prevent scabies. There needs basic research to planned education health programs. The data was needed to inform each aspect including biological research into transmission and pathogenesis, epidemiologic research, and public health research to investigate sustainable and effective control programs (Engelman *et al*. 2013).

Health education will be success with commitment, innovation, leadership, regarding the model. Commitment is needed from health-care providers and the research community to improve the knowledge of this parasitic skin disease and to better care for those affected (Heukelbach and Feldmeir 2006). Innovation, leadership, collabora-tion, and a considerable required to increase in available resources and infrastructure (Engelman *et al*. 2013). Control of scabies was achieved by raising awareness of scabies, engaging financial supporters through advocacy, enhanced clinical and epidemiologic study to better understand the burden of disease; development and implementation of effective control strategies (Engelman *et al*. 2013). Regarding the modes of transmission and prevention of scabies should be given health education to the students and the management (Raza *et. al*. 2009).

## 3.3 Strategy to increase health education

Health education is important to increase of knowledge students to be aware of these neglected diseases (Chowsidow 2012). The first challenge is to raise the profile of this ubiquitous but largely ignored disease, so that health education is the best solution. Health education in boarding school Malang from the material, facilitators, media and methods was less varied, too monotonous, not creative and innovative. So, there are not optimal to improving the knowledge of students.

Base on the results of research and literature review was proposed several strategies to improve the quality of health education at boarding school. Health education strategies in this research most on aspects of communication. In principle, aims to provide information to enhance the knowledge of students, thus raising awareness to change attitudes and behavior are more hygienic so as to prevent the disease, including disease scabies (Bensley and Fisher 2003).

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### 3.3.1 Material health education

The material proposed to be given to students among other signs of skin disease scabies, mite transmission, and how to avoid scabies disease. Scabies has recently been classified as a neglected disease (Boralevi *et al.* 2013). The neglect of this diseases cause serious health problems, like secondary infection. So, education about the sign/symptoms and the method of transmission of this disease will help greatly to reduce the prevalence of scabies and avoid probable future epidemiology (Raza *et al.* 2009). Prevent scabies can conducted with increase personal hygiene, example: hand washing with soap as disinfectant and antiseptic (McDonald *et al.* 2008).

The material on the biological aspects of the disease-causing scabies mites are also proposed to be given to the students. The aspects include classification mite, morphology, growth and development of mites, reproduction of mites, life cycle, mite metabolism, nutritional needs and habitat. The knowledge about aspects biology has important to increase scientific literacy of the students. The students are expected to apply scientific concepts to prevent the growth and development of the mites on the epidermis skin of humans, stopping reproduction of mites and break the life cycle of the mite by inhibiting the metabolism of mites.

### 3.3.1 Material health education

The health education facilitator this research are college students and health authorities from ministry of health Republic Indonesia. They are external facilitator, come from outside the boarding school. So, it would be better if the facilitator comes from the boarding school that called internal facilitator. They are more aware situation, closer interaction with the students, and can do sustainable program. The teams internal facilitator include management, teachers, principals, school librarians, counselors, and education support staff, such as counselors, social workers, doctors and nurses (Sciarra and Hunter 2015). Students can also become a facilitator this so-called peer education, because in adolescence, peers have a greater influence than the parental role in the formation of behavior (Pramintari *et al*. 2014).

Management, teachers, principals, school librarians, counselors, education support staff, and peer educators have a role to provide knowledge, raise awareness and influence behavior better in preventing disease scabies. Counselor assisting role in addressing student mental condition scabies disease, some student embarrassment, depression, or does not care about the disease they suffered from scabies. Health professionals, such as doctors and nurses role is to treat the disease. Team facilitators should work together collaboratively to improve the health literacy of students, which means increasing the awareness of students to prevent disease and seek treatment as soon as possible if they are sick.

### 3.3.3 Media health education

Media use in health education only written rules and LCD projectors. Written rules created on paper taped to the walls of the boarding school. LCD projectors used at the time of counseling. The proposed learning media is more varied, such as audio-visual media, visual media, audio media, and print media. Audio-visual media is film/video to introduce disease scabies, transmission scabies, and prevention of scabies. Visual media are posters and billboards containing about health messages. Audio media is media that rely on voice capabilities, such as radio, cassette recorder which contains the health message. Print media among other modules, a paperback book. Further research need to test the effectiveness and practicality of the media.

### 3.3.4 Methods health education

Learning methods are used when the extension using the lecture. Learning methods in health education proposed more varied again, for example, using interviews, demonstration, inquiry, discussion, question and answer, experiments, tutorials, or observation. Further research need to test the effectiveness and efficiency of learning methods to improve the knowledge and awareness of students.

## 4. CONCLUSIONS

The prevalence of scabies in boarding school Malang Raya was 37.32%, there are more prevalent in males than female. It was associated with the level of knowledge of student relative low. Health education has been done in the boarding school during this time was done not optimal and have not been well planned. The quality of health education needs to be improve, through several strategies, among others to increase the variety of learning materials, improving the quality and quantity of facilitators, increase the variety of media that attract the attention of students and done variety method learning more effective and efficient in increasing knowledge, awareness and attitudes of students to prevent disease scabies.

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